

Transient Voltage Suppressors for ESD Protection

ESD05V02D-ULC

Description

The ESD05V02D-ULC is ultra low capacitance TVS arrays designed to protect high speed data interfaces. This series has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from over-voltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).

Feature

- ◆ Ultra small SMD package:0201
- ◆ Ultra-Low capacitance: <0.2 pF
- ◆ Protects One Bidirectional I/O line
- ◆ Low clamping voltage
- ◆ Working voltages : 5.0V
- ◆ Low leakage current
- ◆ IEC61000-4-2(ESD): ± 15kV (air discharge)
± 15kV (contact discharge);

Applications

- ◆ USB 3.0 / USB 3.1 Interfaces
- ◆ HDMI 1.4 / HDMI 2.0 Interfaces
- ◆ Video Graphics Cards
- ◆ Notebooks, Desktops, and Servers
- ◆ Portable Instrumentation
- ◆ Industrial Controls
- ◆ Peripherals

0201/DFN0603



Functional Diagram



Mechanical Data

- ◆ JEDEC 0201/DFN0603 Package
- ◆ Molding Compound Flammability Rating : UL 94V-O
- ◆ Weight: 0.0004 grams(approx.).
- ◆ Polarity: Color band denotes cathode end.
- ◆ Mounting position: Any

Mechanical Characteristics

Symbol	Parameter	Value	Units
P _{pp}	Peak Pulse Power (tp=8/20μs waveform)	30	Watts
T _J	Operating Junction Temperature Range	-40 to +125	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
I _{pp}	Peak pulse current	2	A

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Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reverse Working Voltage	V_{RWM}	--	--	--	5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	7.0	9.0	--	V
Reverse Leakage Current	I_R	$V_{RWM}=5V$; $T=25^\circ C$	--	1	50	nA
Positive Clamping Voltage	V_C	$I_{PP}=1A$, $T_P=8/20\mu S$;	--	11	--	V
		$I_{PP}=2A$, $T_P=8/20\mu S$;	--	14	--	
Junction capacitance	C_J	$V_R=0V$, $f=1MHz$	--	--	0.2	pF

Characteristic Curves

Fig1. 8/20µs Pulse Waveform

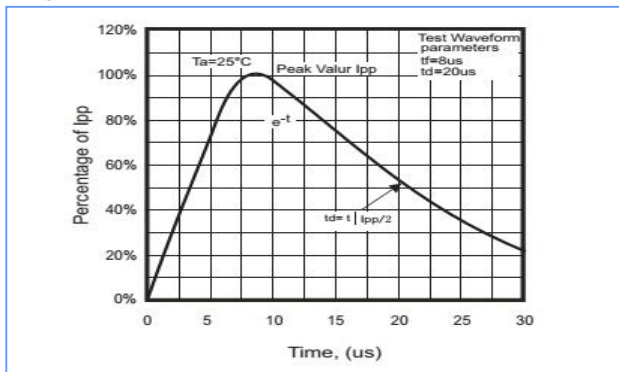


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

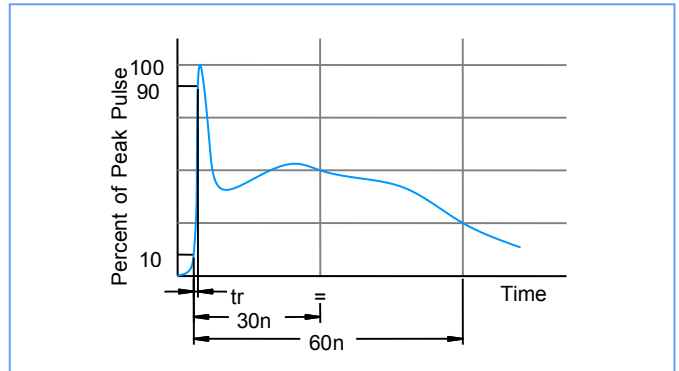


Fig3. Power Rating Derating Curve

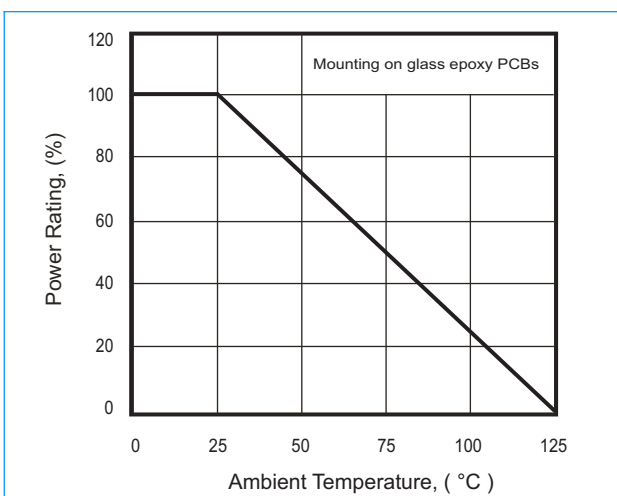
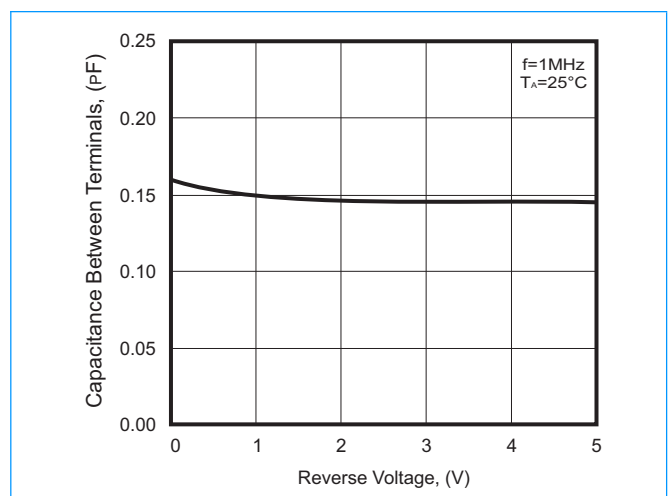


Fig4. Capacitance Between Terminals Characteristics

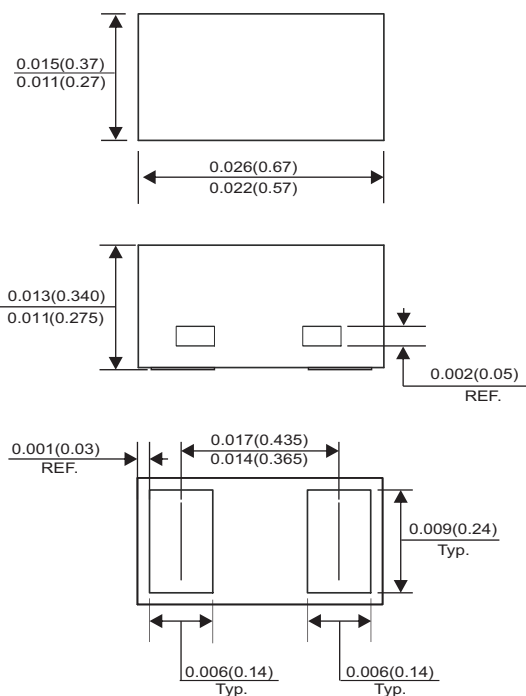


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0201/DFN0603 Package Outline & Dimensions

0201/DFN0603



Dimensions in inches and (millimeter)

Suggested PAD Layout

SIZE	0201(DFN0603)	
	(mm)	(inch)
A	0.16	0.006
B	0.24	0.009
C	0.34	0.013
D	0.40	0.016
E	0.64	0.025

